

## REMARKS

### Status of the Claims:

New Claims 40-50 are pending herein. No claims have yet been allowed.

### Claims Rejections – 35 U.S.C. § 103

Claims 40-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller (US 5,129,824) in view of Hill (US 5,993,784) and Aberg et al. (US 5,807,541). This rejection is respectfully traversed.

Keller teaches a method for the treatment of periodontal diseases which comprises the delivery of tetracycline antibiotic (and/or hydrogen peroxide) in close proximity to the bone and supporting structure of the teeth. The tetracycline is preferably forcibly delivered directly to the infected site by flossing, brushing, or injection - through the use of tufted floss, an interdental brush or syringe, respectively, or by hydrostatic or mastication pressure through the use of a tray appliance or the like.

Applicant submits that Keller does not teach or suggest the presently claimed invention because:

- (1) Keller does not teach the three steps of the claimed method.
- (2) Keller does not teach a toothbrush wherein each bristle of the toothbrush comprises longitudinal ribs and grooves. Instead, Keller teaches *a brush with hollow bristles* for the delivery of the tetracycline solution.
- (3) Keller does not teach a proxy brush wherein each bristle of the brush

comprises ribs and grooves. Keller teaches absolutely nothing about proxy brushes – a specialized brush form which is very different from a traditional toothbrush.

- (4) Keller does not teach toothpaste containing an emulsion of nonionic surfactants and polydimethylsiloxanes and soft abrasives.
- (5) Keller does not teach a proxy gel containing an emulsion of nonionic surfactants and polydimethylsiloxanes and soft abrasives.
- (6) Keller does not teach a dental floss or a dental tape containing an emulsion of nonionic surfactants and polydimethylsiloxanes and releasable soft abrasives.

The Examiner's contention that "all" tooth brushes comprise of ribs and grooves is simply mistaken. Typical toothbrush bristles are solid columns (typically nylon) with rounded tips, as follows:



The Examiner is likewise mistaken that Keller teaches a toothbrush in which each individual bristle includes three to five ribs and grooves as required by instant

claims 41-42. Nothing in Keller teaches any such device.

The Examiner is likewise mistaken that Keller teaches a proxy brush in which each individual bristle includes three to five ribs and grooves as required by instant claims 41-42. Nothing in Keller teaches any such device.

Applicant understands that Hill and Aberg are added to remedy the deficiencies in Keller. However, Applicant questions basis for the Examiner's claim that one of ordinary skill in the art would have been motivated to expand the teaching of Keller to remove biofilm removal with a toothbrush, proxy brush and floss by substituting the toothbrush of Keller with Hill's toothbrush. Applicant submits that this substitution would not be made, because the Keller toothbrush is specifically designed to facilitate the delivery of liquid tetracycline to the teeth – a required element of the Keller system, which cannot be done with the ribbed and grooved toothbrush described by Hill.

In Keller's system the toothbrush must deliver the liquid tetracycline to the infected tooth, and Keller specifies how this is done as follows:

In accordance with this invention, interdental toothbrush 31 has a hollow, flexible body 35 holding a supply of medicament M sufficient for at least one treatment of the patient's teeth. Body 35 has a neck 37 carrying brush head 33. As best shown in FIG. 8, a channel 39 extends from the interior of the brush body 35 to brush head (bristle means) 37. A frangible seal 41 closes channel 39 until it is ready for use.

In other words, Keller's toothbrush must deliver the liquid tetracycline antibiotic

during use. The toothbrush taught by Hill cannot do this. Accordingly, the Hill toothbrush would not be used in the Keller system.

Hill teaches low foaming toothpaste with soft abrasives, delivered using a ribbed and grooved bristled tooth brush. The ribs and grooves are formed on solid bristles; there are no hollow portions for delivery of a liquid medicament such as Keller's tetracycline antibiotic.

Moreover, nothing in Hill teaches or suggests the claimed proxy brush, or the claimed dental floss. Likewise, Aberg fails to teach using the claimed ribbed and grooved bristled brushes and the specified dental floss.

Aberg simply teaches reducing dental caries/cavities by administering toothpaste with a medicament such as NSAIDs for treating periodontal disease. This fails to make up the deficiencies of the Keller and Hill teachings, and accordingly, the proposed combination of art fails to present a prima facie case of obviousness.

Accordingly, Applicant submits that the combination of Keller, Hill and Aberg fails to make out a prima facie case of obviousness, and the Section 103(a) rejection of Claims 40-50 should be reconsidered and withdrawn. Such action is respectfully requested.

**Conclusion:**

For the reasons set forth herein, allowance of the claims is respectfully requested.

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Respectfully submitted,

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